ATOMIC ENERGY newsletter®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

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Dear Sir:

Budget of $2,669,500,000 for U.S. Atomic Energy Commission for fiscal year 1960 was requested of Congress by President Eisenhower in his annual Budget Message last fortnight. It represents an increase by some $215,284,000 over USAEC's 1959 spending, and is largest budget in USAEC's history. The total includes $149,500,000 which will be requested in supplemental appropriations when the necessary authorization legislation is enacted. Practically all major Commission activities get more money in this new budget; exceptions are weapons, training, education and information, and community and security. Procurement of raw materials accounts for largest single increase; budget provision of $739,600,000 is an increase of $42,658,000 over 1959 spending. (Other BUSINESS NEWS, p. 2 this LETTER.)

Group of inexpensive complete laboratories for use by college students in training in analytical and industrial process applications of radioisotopes is now being offered by Nuclear-Chicago Corp., Chicago 10, Ill. The laboratories include equipment for measuring and recording radioactivity: shielded Geiger counter and sample changer, radioactivity obsorbers, scaler with high voltage supply and decimal readout, radioactivity standards, etc. The instrumentation supplied with these student laboratories is in the categories of equipment for which the USAEC will consider making direct financial assistance to colleges and universities: this LETTER, Jan. 6, 1959, p. 4. (Other MANUFACTURERS' NEWS, p. 3 this LETTER.)

Six Summer Institutes on Nuclear Energy for engineering teachers are planned for this Summer in the U.S. under the sponsorship of the USAEC and American Society for Engineering Education. Five of the 1959 institutes are for teachers in colleges of engineering; one course is for teachers in technical institutes. About 150 teachers will be the maximum capacity of the courses. Attendees are to be selected by sub-committees of the ASEE Nuclear Committee on basis of the candidates' experience and the instructional use to be made of the training. Applications can be obtained from Prof. W. Leighton Collins, ASEE, University of Illinois, Urbana, Ill.; they should be returned to him by Mar. 1, 1959.

Power level of the nuclear reactor of Armour Research Foundation of Illinois Institute of Technology will be raised from its present 10,000 watts to 100,000 watt level, under approval recently received by the Foundation. The reactor, the first established in the U. S. for private industrial research, will now be the largest of its type in the world.

Tariff of 10% on all imported nuclear products, with collection suspended until January, 1962, has been decided upon by members of the European Atomic Energy Community (EURATOM): France, W. Germany, Italy, Belgium, Holland, and Luxembourg. (Export-Import Bank has authorized a $135,000,000 loan to assist EURATOM in financing purchase of nuclear reactors; according to a spokesman for the Bank, "virtually all" the money would be spent in the U.S. The U.S. will also furnish EURATOM with $50,000,000 for research and development.) (Other PRODUCT NEWS, p.3 this LETTER.)

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ATOMIC ENERGY BUSINESS NEWS...

FUEL ELEMENT ORDER RECEIVED:- Order for 38 stationary nuclear fuel elements to refuel the Army's package power reactor (APPR-1) has been received by Sylvania-Corning Nuclear Corp., Bayside, L.I., N.Y. Order was placed with Sylvania-Corning by Alco Products, Inc., which built and operates APPR-1 under contract with Department of the Army. (p. 5 this LETTER.) The fuel elements to be fabricated will consist of 18 flat plates joined by brazing to a pair of side plates. The flat plates are composed of a core section containing enriched uranium dioxide and a small quantity of boron carbide dispersed in a matrix of stainless steel powder which is clad with stainless steel. The core sections are prepared by a powder metallurgy process and are clad by roll-bonding. Thirty-eight such assemblies, containing 684 plates in all, comprise the fuel element loading of the reactor. Final delivery of the elements will be made late in 1959.

INDUSTRIAL RESEARCH REACTOR GOES CRITICAL:- Nuclear research reactor of Industrial Reactor Laboratories, Plainsboro, N.J., went into operation last fortnight when criticality was achieved. American Machine & Foundry was prime contractor for design and construction of the reactor which will be used by the ten companies which comprise Industrial Reactor Laboratories: American Tobacco Co.; American Machine & Foundry; Atlas Powder Co.; Continental Can Co.; Corning Glass Works; National Distillers & Chemical Corp.; National Lead Co.; Radio Corp. of America; Socony Mobil Oil Co.; and U.S. Rubber Co. Each company will have its own laboratory, with access to the reactor.

NUCLEAR INSTRUMENT FIRM DISTRIBUTING APPARATUS IMPORTS:- Scientific apparatus imported from Japan, Germany, and Great Britain, and being distributed in the U.S. by Ealing Corp., an affiliate of Baird-Atomic, Inc., Cambridge, Mass. will now have Russian imports added to the company's offerings in the U.S. Baird-Atomic, which manufactures scientific instruments including many for use in nuclear work, did not disclose whether Ealing would import Russian nuclear instruments. First such shipment expected will comprise some 6000 pieces of equipment from the Soviet Union, and will include such standard laboratory apparatus as microscopes, optical benches, etc. Ealing noted that prices the equipment will be sold in the U.S., even with the import duty of about 40%, will still be "about one-fifth" the comparable price of U.S.-made instruments. Paul D. Grindle, president of Ealing, said that much of the equipment was already sold to Universities and colleges from samples which had appeared of "top quality in every respect, and equal to similar units produced in the U.S. today".

INSTRUMENT MANUFACTURER IN FINANCIAL DIFFICULTIES:- Universal Transistor Products Corp., Westbury, L.I., has now filed petition for reorganization under the Bankruptcy Act, in the eastern district, New York. No schedules were filed. The company has specialized in production of instruments using transistors in their circuitry, and produces a number for use in the nuclear field. It also produces miniaturized power supplies using transistor circuitry.

LARGE NUCLEAR POWER PLANT SUGGESTED BY INDUSTRIAL FIRM:- Westinghouse Electric Corp., is ready to build a 330,000 kw nuclear power plant, the company recently told a meeting of electric utility executives. Charles H. Weaver, Westinghouse vice-president in charge of atomic power, said that such a plant will produce power "at costs competitive with fossile fuels in the higher fuel cost areas of the U.S." Such a plant, of the pressurized water type, would be "the big plant required before we will know the answer to economical power", Mr. Weaver noted.

PEOPLE...in nuclear work...

Senators George D. Aiken of Vermont and Wallace F. Bennett of Utah, Republicans, were named last week as members of the Joint Congressional Committee on Atomic Energy. They replaced former Senators W. F. Knowland and J. W. Bricker.

Francis K. McCune has been appointed by General Electric Co., as vice-president, atomic business development in marketing services, a new office. In his new post he will be concerned with world markets in commercial atomic energy. Mr. McCune, a GE vice-president, had been general manager of the company's atomic products division. Lyman R. Fink replaces Mr. McCune as general manager.

John L. Kuranz, vice-president Nuclear-Chicago Corp., Chicago, Ill., has been appointed a member of the USAEC's Advisory Committee on Isotope Development.

Richard C. Cole, vice-president, has been named president of Vitro Uranium Co., Salt Lake City, Utah, a division of Vitro Corp. of America.

NEW PRODUCTS, PROCESSES, INSTRUMENTS...for nuclear lab & plant...

NEW PRODUCTS FROM MANUFACTURERS:- Model 10-7 X-ray scintillation counter is low noise, high speed counter for X-ray diffraction studies. Mounting flanges are available to match counter to standard commercial X-ray diffraction systems. Unit includes gain of 10 preamplifier, photo multiplier tube, and specially fabricated, thin sodium iodide crystal. Counter measures approximately 1-5/16"x6"x4¼" and weighs about 4-lbs. --Radiation Instrument Development Laboratory, Inc., 5737 So. Halstead St., Chicago 21, Ill.

New film badge service uses film registering radiation ranges from the softest stray, scattered and beta radiation to high-energy gamma and X-ray (25 mr to 500,000 mr) over wide spectrum of energy levels..... Tritium survey meter continuously monitors atmospheric and surface radioactive contamination from tritium, carbon-14, and low energy beta emitters. The unit has a flow through ionization chamber..... Pulse generator, to check and calibrate nuclear instruments, is said to deliver stable, evenly spaced pulses of positive or negative polarity. Mercury relay is used to get fast-rise exponential decay pulses. --Atomic Accessories, Inc., 244-02 Jamaica Ave., Bellerose 26, N.Y.

New pressure transducer is designed for nuclear applications. It may be used in primary and secondary loop measurements in pressurized water reactors, boiling water reactors, and some organic moderated and homogeneous reactors. Manufacturer states that since it is made entirely of inorganic components, it will not be affected by radioactive environments. It is furnished in ranges from 0 to 1-in. water to 0 to 10,000 p.s.i. --Bristol Co., Waterbury, Conn.

New retention tank and effluent water monitor automatically monitors and controls the route of coolant liquids from liquid cooled nuclear reactors. Signals from the detectors (which are sensitive to gamma and strong beta radiation) actuate automatic controls which route the liquids either to retention tanks or disposal channels depending on the preset tolerance limits. Various combinations are offered; one system, as an example, will sample six different streams and record radiation levels in each. --Tracerlab, Inc., Waltham 54, Mass.

PRODUCT NEWS:- Recently shown by Mine Safety Appliance Co., Pittsburgh, at the recent Philadelphia exposition of the American Society of Heating & Air Conditioning Engineers was that firm's new Dustfoe Space Filter. Of 1000 CFM capacity, the company is offering the filter in the 24"x24"x6" size, and recommends its use in any application where electro-static type filters are now being used. Anticipated uses include USAEC facilities; research and bacteriological laboratories; chemical, pharmaceutical and other process industries: etc.

High purity yttrium metal, with the dissolved oxygen level lowered to 200 ppm, has been developed at the Albany, Oregon laboratory of Bureau of Mines. In such a state of purity, the metal is ductile enough for structural applications in nuclear reactors. Its low thermonuclear cross-section, and its melting point of 2825 deg. F. are other assets recommending its use as a construction material in nuclear reactors. (Metallurgists at this laboratory recently accomplished the casting of molybdenum metal; this is believed to be the first time it has been done. Previous attempts had been made but the metal's high melting point of 4,748 deg. F. had prevented success. First molybdenum casting made, using a 30-lb. charge, was a hollow cylinder 4½" in diameter and 8" long. An electric arc in an inert atmosphere, operated remotely, was used to melt the charge in a water-cooled, copper-lined crucible. The molten metal was then poured into a rotating graphite cylinder that forced it to the walls of the rotating mold where it solidified.)

MANUFACTURERS NEWS:- Sale by the newly-formed Nuclear Products Branch of the Georgia division of Lockheed Aircraft Corp. has been made to University of Texas of a small sub-critical nuclear reactor for student instructional and training purposes. First sale by the Nuclear Products Branch, it was accomplished on a low bid basis. As furnished, the school's reactor has a core 10" in diameter and 14" long; two types of reflectors, polyethylene and graphite, are used in the reactor with thicknesses varying from 3 to 10 inches. Main use will be in the University's new nuclear engineering curriculum, being developed with the assistance of the USAEC.

Of the more than $22 million worth of supplies bought by General Electric Co., for the Hanford Atomic Products Operation during 1958, approximately two-thirds came from firms employing less than 500 people, or small businesses. However, in dollar value, about two-thirds of Hanford purchases went to firms employing more than 500 people. General Electric operates Hanford under prime USAEC contract.

ATOMIC ENERGY PATENT DIGEST...

ISSUED January 20, 1959 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:- (1) Radiography source. J. C. Pennock, inventor. No. 2,870,341 assigned to Tracerlab, Inc., Boston, Mass.

ISSUED January 20, 1959 to GOVERNMENTAL ORGANIZATIONS:- (1) Multiplier circuit. R. E. Thomas, inventor. No. 2,869,784 assigned to USAEC. (2) Adder circuit. D.H. Jacobsohn, inventor. No. 2,869,786 assigned to USAEC. (3) Slurry solvent extraction process for the recovery of metals from solid materials. R. R. Grinstead, inventor. No. 2,869,979 assigned to USAEC. (4) Process for recovery of metals from high-lime carnotite ores. R. R. Grinstead, inventor. No. 2,869,980 assigned to USAEC. (5) Process for the purification of uranium. Sam Rosenfeld, inventor. No. 2,869,981 assigned to USAEC. (6) Recovery of Pu values by fluorination and fractionation. H. S. Brown, D. S. Webster, inventors. No. 2,869,982 assigned to USAEC. (7) Separation of metal salts by adsorption. D. M. Gruen, inventor. No. 2,869,983 assigned to USAEC. (8) Graphite extrusions. T. M. Benziger, inventor. No. 2,870,031 assigned to USAEC. (9) Nuclear reactor unloading apparatus. M. C. Leverett, J. P. Howe, inventors. No. 2,870,075 assigned to USAEC. (10) Method and apparatus for improving performance of a fast reactor. L. J. Koch, inventor. No. 2,870,076 assigned to USAEC. (11) Fabrication of neutron sources. J. H. Birden, inventor. No. 2,870,339 assigned to USAEC. (12) Method of peak current measurement. G. E. Baker, inventor. No. 2,870,407 assigned to USAEC.

ISSUED January 27, 1959 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:- (1) Apparatus for sensing radioactivity. F. A. Hill, inventor. No. 2,871,366 assigned to Librascope, Inc., Glendale, Calif. (2) Gamma ray collimating device. L. S. Gournay, inventor. No. 2,871,367 assigned to Socony Mobil Oil Co., Inc., New York, N.Y.

ISSUED January 27, 1959 to GOVERNMENTAL ORGANIZATIONS:- (1) Apparatus for detecting radioactivity. G. M. Cahen, P. Bonnet, P. Treille, inventors. No. 2,871,365 assigned to Etat Francais (represented by Secretariat d'Etat a la Defense Nationale). (2) Spherical die. J. P. Livingston, inventor. No. 2,870,484 assigned to USAEC. (3) Forming tubes and rods of uranium metal by extrusion. E. C. Creutz, inventor. No. 2,870,907 assigned to USAEC. (4) Supporting and heat insulating means. B. W. Birmingham, E. H. Brown, R. B. Scott, P. C. Vander Arend, inventors. No. 2,871,042 assigned to USAEC. (5) Niobium-tantalum separation. H. A. Wilhelm, R. A. Foos, inventors. No. 2,871,092 assigned to USAEC. (6) Nuclear reactor component cladding material. J. E. Draley, W. E. Ruther, inventors. No. 2,871,176 assigned to USAEC. (7) Process for separation of heavy metals. J. W. Gofman, R. E. Connick, inventors. No. 2,871,251 assigned to USAEC. (8) Calutron assembling and disassembling apparatus. R. E. Andrews, inventor. No. 2,871,361 assigned to USAEC. (9) Calutron assembling and disassembling means. R. E. Andrews, J. Thornton, inventors. No. 2,871,362 assigned to USAEC. (10) Calutron assembling and disassembling apparatus. R. E. Andrews, inventor. No. 2,871,363 assigned to USAEC. (11) Calutrons. E. O. Lawrence, inventor. No. 2,871,364 assigned to USAEC. (12) High-speed multiple-exposure photographic apparatus. R. W. Buntenbach, inventor. No. 2,871,400 assigned to USAEC.

BOOKS & OTHER PUBLICATIONS...

Guide to Nuclear Energy. R.F.K. Belchem. A simplified account of the functioning of nuclear reactors 77 pages. ($3.75)..... Radioactivity Measuring Instruments. M. C. Nokes, isotope division, Atomic Energy Research Establishment, Harwell, England. Instructions for making some of the simpler radioactivity measuring instruments, with circuitry, etc., 73 pages. ($4.75) --Philosophical Library, 15 E. 40th St., New York 16.

Measurements of Radioactivity of the Air During 1957. Work done at Naval Research Laboratoy, Wash., D.C. No. PB-151,049 ($1.00)..... Ultra High Temperature Miniaturized Power Transformers and Indicator Materials; Vol. 1 & 2. Work done by General Electric people on power transformers which can operate at 500 deg. C. and under conditions of extreme ionizing radiation. 476 pages. No. PB-151141. ($6.00). --Office of Technical Services, Wash. 25, D.C.

Cadmium Sulfide as a Detector for Measuring Gamma Build-Up. Investigations conducted at Air Force Insti. of Tech., Dayton, Ohio. No. PB-134,842. (Microfilm: ($3.60; Photostat: $9.30)..... Effect of Nuclear Radiation on Semiconductor Materials and Devices. Work done at A. F. Insti. of Tech. No. PB-134,867. (Microfilm: $4.50; Photostat: $12.30.) --Library of Congress, Wash. 25, D.C.

ATOMIC ENERGY CONTRACT NEWS...

Contract to provide the U.S. Army with skid-mounted nuclear power plant, which will be air-transportable, has been awarded Alco Products, Inc., Schenectady. The contract is valued at $3,226,560. The prefabricated plant will be a modified version of the prototype Army Package Power Reactor (APPR-1) which was designed and built by Alco for the Army under USAEC contract. APPR-1, which was completed in April, 1957, is in operation at the Engineer Research and Development Laboratories, Fort Belvoir, Va.; it is a pressurized-water nuclear electrical generating station producing 1825 net kw of electricity. This newest plant, for which contract has just been awarded, will also contain a pressurized-water reactor system. It will have condenser cooling system using air and ethylene glycol in contrast to APPR-1's water cooling. The new plant will produce about 1500 net kw of electricity for heat and power, plus about 1,000-lbs. of steam (or 1 million btu) per hour. The steam might be used for heating barracks, melting ice for water supply, for research and development projects, etc. Fuel for the reactor of the new plant will be essentially the same as that used in the Belvoir plant--uranium oxide, clad with stainless steel. (Unique feature of the plant is that it is engineered for air movement in 20 to 30 modules, or packages, and requires no concrete construction for shielding.)

Eleven proposals have been made to the USAEC by industrial, research and educational institutions to provide test irradiation services under the Commission's program to stimulate commercial participation in such work. Proposals were submitted by Aerojet-General Corp., San Ramon, Calif.; Babcock & Wilcox Co., Lynchburg, Va.; Curtiss-Wright Corp., Quehanna, Pa.; Ford Instrument Co., Long Island City, N.Y.; General Electric Co., San Jose, Calif.; Industrial Testing Reactors, Inc., Charlotte, N.C.; Purdue University, Lafayette, Ind.; Republic Aviation Corp., Farmingdale, N.Y.; Texas Engineering Experiment Sta., College Station, Texas; Westinghouse Electric Corp., Pittsburgh, Pa.; and Kaiser Engineers, Oakland, Calif., ACF Industries, Inc., Wash., D.C., Lockheed Aircraft Corp., Burbank, Calif., Phillips Petroleum Co., Bartlesville, Okla. (joint proposal).

Amendment to contract between USAEC and Northern States Power Co., has been approved by the Commission, and filed with Joint Congressional Committee on Atomic Energy. Proposed amendment provides for Commission research and development support for a nuclear superheater to be incorporated in the 66,000 electrical kw reactor plant to be constructed by Northern States at Sioux Falls, S.D. The original plant plans called for a boiling water reactor with a separate conventional superheater, now eliminated. The reactor under the new proposal would consist of a two-section core in which the saturated steam, formed in the outer section, flows through the inner section where it is converted to superheated steam, resulting in increased plant efficiency. The amendment adds some $2,500,000 to the original contract for research and development assistance, and an estimated $800,000 covering waiver of superheater fuel use charges. Revised estimated total cost of the project is now $33.1 million of which the USAEC will contribute $10.3 million, and Northern States Power Co. (a group of 11 midwestern electric utility companies) the balance. Allis-Chalmers Man. Co., Milwaukee, Wisc., is principal subcontractor for research and development, fabrication and construction of the reactor.

Contract has been signed by USAEC with Carolinas Virginia Nuclear Power Associates (CVNPA) for construction of a 17,000 kw nuclear power plant at Parr, S. C., under the Commission's power demonstration reactor program. Estimated capital costs of $22 million will be paid by CVNPA. Maximum cost to the USAEC, which includes research and development assistance, and waiver of fuel use charges for fuel, will be $15,075,000. Project operating date of plant is June 30, 1962. Stone & Webster Engineering Corp., is architect-engineer on the job; Westinghouse Electric will develop and furnish plant equipment. (Carolinas Virginia Nuclear Power Associates include Duke Power Co., Charlotte, N.C.; South Carolina Electric & Gas Co., Columbia, S.C.; Carolina Power & Light Co., Raleigh, N.C.; and Virginia Electric & Power Co., Richmond, Va.)

Sincerely,

The Staff,
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